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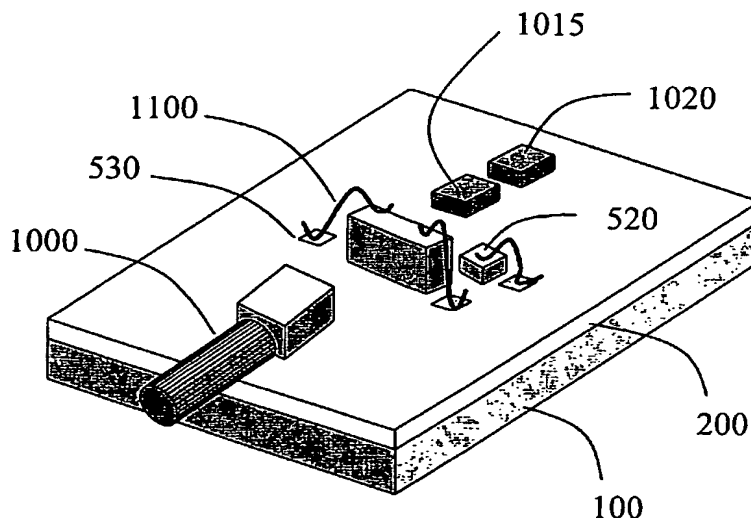
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- (72) Inventor; and  
(75) Inventor/Applicant (for US only): **KARKKAINEN, Ari** [FI/FI]; Kontiotie 7 #F 69, Fin-90530 Oulu (FI).
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- (74) Agent: **DUTTON, Erica**; Rosemount, Pednorvale Road, Chesham, Buckinghamshire HP5 2ST (GB).
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- (71) Applicant (for all designated States except US): **OPTITUNE PUBLIC LIMITED COMPANY** [GB/GB]; St George's House, 61-65 Conduit Street, London W1R 9FD (GB).
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[Continued on next page]

(54) Title: SUBSTRATE BASED COMPONENT PACKAGING AND ASSEMBLY



(57) Abstract: A packaging layer (200) for a wafer level assembly is fabricated from a glass material comprising both inorganic and organic components. This allows matching between the coefficient of thermal expansion of the packaging layer and that of other materials in the wafer assembly, particularly electrical interconnect materials. It is also possible to introduce properties to support such methods as photolithographic and low temperature processing of the packaging layer. This can improve fabrication accuracy and allows the packaging layer to be used with structures in a wafer assembly which might be damaged by high temperature processing, such as active optoelectronic devices and integrated circuits. Another major advantage is that the glass material can be used to provide optical characteristics as well as mechanical protection. The refractive index and other optical properties can be preselected and thus the glass material can be used for instance for waveguiding and index matching.



SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- with amended claims

**Declaration under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>003-1036WO</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 03/04129</b>	International filing date (day/month/year) <b>19/09/2003</b>	(Earliest) Priority Date (day/month/year) <b>19/09/2002</b>
Applicant <b>OPTITUNE PUBLIC LIMITED COMPANY</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.  
☐ It is also accompanied by a copy of each prior art document cited in this report.

#### 1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☒ Unity of invention is lacking (see Box II).

#### 4. With regard to the title,

- ☐ the text is approved as submitted by the applicant.
- ☒ the text has been established by this Authority to read as follows:

**SUBSTRATE-BASED COMPONENT PACKAGING AND ASSEMBLY**

#### 5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 11

- ☐ as suggested by the applicant.
- ☐ because the applicant failed to suggest a figure.
- ☒ because this figure better characterizes the invention.
- ☐ None of the figures.